



# Energy Efficiency Legislation Regulations



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# DOE & EISA Ruling Explained

In March of 2010, the DOE (Department of Energy) instituted a ruling that incorporates small motors into their Energy Efficiency Programs. The DOE, as required by law, is mandated to review the readiness of the Energy regulations based on current materials and manufacturing technologies. This SMR (Small Motor Efficiency Rule) includes motors that are described in the information below. This rule goes into effect on March 9th, 2015. Motors requiring outside agency approval, such as UL or CSA, have a 2-year extension and need to comply by March 9, 2017.

In addition, in May of 2014, the DOE released communications with required expansions of 3 phase,

single-speed, low voltage, integral HP motors, 1-500 HP to meet NEMA Premium efficiency levels, excluding some exceptions. This ruling expands current motor regulation for motors that were not previously covered in the EISA 2010 regulations. These families of motors are also listed in the information below. This rule goes into effect on June 1, 2016.

This new rule is predicted to save approximately 7 quads of energy and result in approximately \$41.4 billion in energy bill savings for products shipped from 2016 – 2045. This rule is also predicted to reduce 395 million metric tons of carbon dioxide emissions.

## **FOR THE SMR, THE MOTORS THAT ARE IN SCOPE INCLUDE:**

- ▶ 2-digit frame numbers – 42, 48 and 56 frame motors and their IEC equivalent frame size motors
- ▶ The Speed or Poles of the motors would include 2, 4 and 6 pole designs from 1/4 to 3 HP
- ▶ Open construction motors that are either 3 phase (Polyphase), Cap Start – Induction Run or Cap Start/Cap Run designs
- ▶ Continuous duty rated and also meet NEMA Service Factor

## **EXEMPTIONS TO THIS RULE INCLUDE:**

- ▶ Definite or Special Purpose OPEN construction design motors
- ▶ Motor speeds that are outside of the 2, 4 and 6-pole speeds
- ▶ Enclosed motors
- ▶ Motor types that are not classified as being 3 phase, Cap Start – Induction Run or Cap Start/Cap Run
- ▶ Intermittent duty motors as well as designs outside the HP and frame size listing as described above
- ▶ Motors that are already covered by other efficiency legislation are also not covered by this rule



# EISA Expansion Rule

The EISA (Energy Independence and Security Act) expansion and compliance rule, or sometimes referred to as the EISA Expansion Rule, expands the following list of motor designs to meet NEMA Premium efficiency: 1 – 500 HP, NEMA Design A, B & C (1 - 200 HP only today for Design A & B motors); IEC Design N, H, 8 Pole designs, enclosed 56 Frame IHP (1 HP and

larger) that are either of General Purpose, Special or Definite Purpose design electric motors.


The Efficiency levels must meet NEMA Premium levels as listed in Table 12-12 (IE3 – 60Hz). Please visit [www.leeson.com](http://www.leeson.com) for a copy of the NEMA 12-12 table.

## **MOTORS NOW AFFECTED BY THIS EXPANSION RULE INCLUDE:**

- ▶ NEMA Design A & B motors from 201 to 500 HP
- ▶ NEMA Design C motors from 1 to 500 HP
- ▶ All voltages ≤ 600 volts
- ▶ 8-pole motors
- ▶ Electric motors with non-standard endshields, flanges or shafts
- ▶ Motors with moisture resistant windings, like encapsulated or sealed windings
- ▶ Motors that use any non-standard mounting like a base or cradle
- ▶ Motors that do not have a base or cradle – footless designs
- ▶ Partial designed electric motors – but not rotor and stator sets
- ▶ Vertical hollow shaft motors
- ▶ TENV designed motors
- ▶ JM and JP Pump motors
- ▶ Electric motors having thrust or roller bearings
- ▶ Integral brake motors
- ▶ Motors with separately cooled blowers on them
- ▶ Enclosed 56 frame 1 HP and larger – 56 Open motors are covered by the SMR
- ▶ Gearmotors if the motor can be removed from the reducer and work as independent motor

## **EXEMPT MOTORS FROM THE 2010 EXPANSION RULE INCLUDE:**

- ▶ Fire pump motors
- ▶ Liquid cooled motors
- ▶ Submersible motors
- ▶ Air over design motors
- ▶ Component sets (stator, rotor sets)
- ▶ Small electric motors below 56 frame – see SMR rules
- ▶ Advanced Motor Technology motors which include PMAC, ECM, Brushless DC, etc.
- ▶ Inverter duty only motors



LEESON Electric, a Regal Brand, continues to drive legislative actions to lower energy consumption for the future. We are committed to offering our customers the most efficient motor designs using the latest innovative technologies to meet higher efficiencies.

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The REGAL logo features the word "REGAL" in a bold, white, sans-serif font, centered within a dark gray trapezoidal shape that tapers to the right.

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